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ABSTRACT

This paper describes the Classroom Observation Form (COF), which was used to evaluate elementary and secondary school gifted education programs in Virginia and South Carolina. The study examined the nature of classroom practice and developed a database on the nature of classroom practice in multiple settings serving high ability learners across different models at different levels of the system. It investigated differences in instructional behaviors seen in different organizational arrangements. Researchers collected data on 157 classrooms with trained observers using the COF. The COF has 40 items grouped into nine categories of behavior. Data analysis indicated that teaching gifted students employed fewer higher level strategies than anticipated, given the nature of teacher training emphases at state and national levels. While teachers appeared strong in many categories of good teaching, they fell short in all categories that examined differentiation practices. Individualizing for differences within the gifted population, critical thinking and problem solving were found to be underutilized in most classrooms. Core teaching behaviors such as lesson planning and clarity in providing directions were more routinely observed. Curriculum reform elements were uneven, with a greater prevalence of concept teaching than other behaviors. (Contains 15 references.) (SM)

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The Application of Instructional Reform in Classrooms: Benchmarking Effective Teacher Behavior

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Introduction and Background

If "teaching matters" is a key premise of educational reform, then teaching of the high ability learner matters as well. However, the research base on the implementation of best instructional practices in classrooms serving gifted students is fairly scant. Westberg, Archambault, Dobyns, and Salvin (1993) documented that no curricular or instructional adaptations were made for gifted learners in heterogeneous classrooms in 84% of their instructional activities, a finding that led to re-sounding the clarion call for differentiation. Avery and VanTassel-Baska (under review) found that the use of a high-powered curriculum intervention in social studies, coupled with staff development on its implementation, led to increases in instructional behaviors tied to elements of educational reform. Few other studies have sought to provide empirical evidence of the nature of teaching practice with academically advanced learners against the landscape of the reform agenda.

During the past year, the authors had the opportunity to conduct three local evaluations of elementary and middle school gifted education programs. The organizational models used to deliver services across these three districts included cluster grouping in the regular classroom, self-contained classes, and pull-out programs. The three districts, two in Virginia and one in South Carolina, shared similar demographic make up, representing suburban communities with higher than average SES and increasing minority enrollment. We were able to use the same Classroom Observation Form (COF) in each evaluation and thereby establish an incipient database on the nature of classroom practice in multiple settings serving high ability learners across different

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models at different levels of the system. Most recently, we have begun to explore the specification of a benchmark for what constitutes acceptable classroom practice at the gifted program level.

Purpose

The purpose of this paper is to share the instrument (COF) used to conduct these classroom observations and the analysis of the database created by its application in multiple instructional contexts. This analysis allows us to examine differences in instructional behaviors seen in different organizational arrangements. We would also like to share our emerging efforts to establish a quantitative threshold for what is considered an acceptable level of practice in gifted education program contexts, using the COF database to investigate viability.

Theoretical Framework

Our understanding of the powerful effects of teaching on learning has been demonstrated in several recent studies. Sanders and Rivers (1998) found that having ineffective teachers for three years in mathematics depressed achievement across all ability groups by 54%. Kennedy (1999), in an analysis of staff development models for federally funded math and science programs, found that less than 10% of the programs examined student outcome data as a part of their assessment of the effects of training. Of those that did, encouraging teacher behaviors that were content-based and focused on discrete pedagogy were most impactful on teachers and on subsequent student learning. Wenglinsky (2000) found that the use of higher level thinking and metacognition were significant teaching practices in effecting student achievement in math and science, more important than the distal variables of teacher preparation and credentialing. Thus teacher behaviors constitute an important consideration in effecting the curriculum reform agenda.

Gifted education practice has had an uneasy alliance with key facets of educational reform (VanTassel-Baska, 1993), supporting the need for challenging standards but questioning the impact of inclusion on talent development. To its credit, the field is recognized for advancing the introduction of innovative instructional practices into the classroom, such as inquiry learning, critical and creative thinking skills, higher-order questioning strategies, metacognition, and the use of rich and varied curricular materials, rather than sole reliance on textbooks (Tomlinson & Callahan, 1992). Most recently, the introduction of content-based curriculum tied to state and national standards and evaluated on student learning gains (VanTassel-Baska, Bass, Ries, Poland, & Avery, 1998; VanTassel-Baska, Zuo, Avery, & Little, 2002) has again positioned the field in the forefront of curriculum reform, with the emphasis on "going through the standards and not around them" to achieve instructional impact.

In spite of such advances, there is little evidence that gifted education programs systematically assess student gains using appropriate learning measures (Avery & VanTassel-Baska, in press). In the absence of student impact data, we must often rely on the quality of the instructional experience as a proxy method for investigating program effectiveness. In fact, teacher effectiveness has been shown to be the main determinant of student progress (Sanders & Horn, 1998). Classroom observation provides a nexus between the input variables of the teacher and his/her students and the process of instruction itself a process that combines instructional intent (goals and objectives), curriculum resources and materials, instructional and assessment strategies, and classroom management skills within a delimited period of time. In meeting the needs of the gifted learner, the observer must focus on three dimensions of practice: good teaching in general, key elements of educational reform, and differentiation for high ability learners.

The Role of Classroom Observation in Program Evaluation

Classroom observation is a seminal part of program evaluation. It affords an opportunity to access the actual instructional experience that is at the heart of teaching and learning. It provides a nexus between the input variables of the teacher and his/her students and the process of instruction itself, a process that combines instructional intent (goals and objectives), curriculum resources and materials, instructional strategies, and classroom management skills within a delimited unit of time. It is the one part of a program evaluation process that allows the critical pieces to come together in an authentic opportunity for insight and knowledge about the quality of the learning experiences that are delivered.

One way of thinking about the classroom observation component of an evaluation is to see it as a performance-based assessment of the teacher within the context of the learning environment. It affords many of the features of performance-based assessment with the teacher, rather than the student, as the unit of focus. For instance, it is a relatively open-ended experience, with teachers exercising much control over the selection of the lesson to be taught. It allows for the demonstration of complex and higher-order behaviors, recognizing that good teaching derives from a sophisticated set of skills that unfold in an integrated way. It also allows for self-assessment, providing a metacognitive dimension to the experience. Most importantly, by using a structured form, it provides a benchmark against which the teaching process can be assessed based on expectations derived from best practice in the field of gifted education.

However, it is important to distinguish between program and teacher evaluation in terms of the parameters used in the classroom observation process. In our work, the focus is on program

evaluation, which targets the collective whole. Teacher behavior is sampled through the classroom observation process and the intent is to allow teachers to prepare for the observation period in order to reduce the level of threat that permeates this climate of accountability. By aggregating data across classrooms, a snap-shot of instructional practice is created that helps inform our understanding of program quality. Direct observation is also an important component of a teacher (or staff) evaluation process, but deeper sampling of the individual being assessed must occur when used for this purpose. Also, teacher evaluation should involve some opportunity for unplanned visits to the classroom to assess the consistency of instructional performance. While the two uses of classroom observation (program and teacher evaluation) can complement one another, it is important to acknowledge that the limited sampling template used for program evaluation is not sufficient to make inferences regarding individual staff performance tied to retention or promotion decisions.

Methods

The researchers collected data on 157 classrooms with trained observers using the Classroom Observation Form developed by VanTassel-Baska and Avery (Avery & VanTassel-Baska, under review; Avery, VanTassel-Baska, & O'Neill, 1998). This form has 40 items grouped into nine categories of behavior. Teams of trained observers, drawn from both within the relevant districts and the Center for Gifted Education, conducted each observation, first completing the checklist independently, then conferring on their final assessment. The content validity, established by expert review, was found to be .97. The inter-rater reliability of the instrument had previously been calculated at .63 (Avery & VanTassel-Baska, in press). For this study, the reliability using Cohen's Kappa was found to be .82 (Feng, 2001). Inter-rater reliability was further enhanced by using a team consensus model for final determination of scores. Observations were conducted

during the 2000-2001 school year and each lasted approximately 35-45 minutes. Elementary and middle school classrooms were included, with representation from three different organizational models serving gifted learners. Visitations were scheduled, and teachers were notified in advance of the purpose of the observation. (See Appendix A for a copy of the form.)

Data Analysis

The data collected for this study have been analyzed using means and percentages with comparisons among different content areas, school levels, and organizational models presented graphically. Breakdowns are presented for the whole sample, by school level (elementary and middle), content area, and program type. Chi square analysis was conducted to test for differences by level, content area, and program type.

Results

Classroom observations were conducted across grades 2-12 with the highest frequency occurring at grades 3-8 where 20-27 observations were conducted at each grade level. More language arts (N=43) and math (N=35) lessons were observed than either social studies (N=22) or science (N=15). Frequency of observations was relatively balanced across the three districts, ranging from 51-62.

Figure 1 reflects the differences between observed behaviors and optimal performance in all nine categories of teaching performance. The overall differences by category between observed and optimal behavior reflected important differences in the key areas of accommodation to individual differences, critical thinking, problem-solving, metacognition, and classroom extensions. An analysis by teams using the form suggested items within categories necessary to be observed in

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order to infer acceptable behavior in that category. Such determination varied by categories, based on number of items, and the nature of the category itself. For example, acceptability in employing critical thinking would require three out of the five items in that category to be observed. The reality of limited observation time also affected judgments of acceptability. Using this schema, a total score of 21 was required for judging the teacher behaviors at an acceptable level. Results across the data set using this benchmark suggested that less than half of the teachers met acceptable levels of performance. External expert validation suggested that 30 observed behaviors were necessary for teachers to be judged exemplary.

Table 1 reflects the presence or absence of teaching behaviors by item across all three district classrooms. Several behavioral terms on the scale were infrequently observed in over a third of classrooms; other behaviors were even less frequently observed (i.e., in less than half of the classrooms) while a sizable set of behaviors were not observed in the vast majority of classrooms (>75%). These behaviors clustered in the categories of accommodation to individual differences, critical thinking, problem solving, metacognition, and learning extensions. The general teaching strategies of technology employment, collaborative learning, higher level thinking, and inquiry-based instruction were also infrequently employed. Table 2 and 3 reflect the most and least observed behaviors by percentage levels.

Results by Subject Area

A chi square analysis revealed significantly different strategy uses by subject area. It is clear that subject area differences affect strategy use in important ways. Consistent use of more flexible strategies was evident in language arts classrooms while social studies classrooms employed multicultural perspectives far more frequently than any other content area. Clarity in lesson

purpose, higher level thinking, problem solving, and metacognition were more apparent in mathematics classrooms than in other content areas. Homework was also more consistently employed as a strategy for learning in math classrooms.

Results by Grade Level

Chi square analysis also revealed significant differences in strategy use by level of schooling. In general, middle school and high school classrooms demonstrated greater use of higher order thinking and metacognitive strategies along with providing greater content challenges than did elementary classrooms. Flexibility in delivery, however, tended to favor elementary classrooms.

Results by Program Grouping Model

Finally, type of gifted program grouping was analyzed using chi square, yielding significant differences as well. In general, teachers in self-contained center-based programs employed more differentiation behaviors than did teachers whose classrooms were organized under the other models. They specifically were significantly stronger in using critical thinking, problem-solving, and metacognitive behaviors. Pull-out programs were strongest in communicating purpose to students, clarity of directions, student feedback, use of self-selected topics for study, and use of technology. Regular in-class cluster-grouped classrooms evidenced greater accommodation to task and motivational differences for subgroups, use of hands-on activities, debate, and homework than did other grouping models.

Discussion

This exploratory study has begun to shape an inquiry into the question of what constitutes acceptable levels of practice in classrooms serving gifted learners and to what extent the

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organizational arrangement of the classroom, the grade level, and the subject matter affect expectations regarding evidence of differentiation, key elements of educational reform, and good teaching practice in general. While the summative judgment of the quality of instructional practice cannot be made in isolation of its impact on student learning, we cannot afford to ignore teacher behaviors that theory and research have found to contribute to improved teaching effectiveness. This study has begun to lay the groundwork for assessing individual teacher performance in response to high ability learners. If, in fact, classroom practice for the high ability learner requires "differentiated" services, then how is this criterion translated into expectations for teacher performance and accountability? This study contributes to providing a mechanism for using quantitative parameters to answer that question.

Furthermore, this study of teacher behaviors provides a snapshot look at teachers who work with high ability learners in various types and levels of classrooms and evidences important understandings about the prevalence of differentiated behaviors thought to evoke stronger learning for this population. The following issues are relevant to considering in light of the findings.

While teachers of the gifted appeared strong in many categories of good teaching, they fell short in all categories that examined differentiation practices. Although educators of the gifted pride themselves on the use of higher level thinking models, these models were less in use than might be expected in classrooms when gifted learners form a critical mass of the student body. Very little emphasis was placed on accelerative strategies in gifted programs. Rate differences between gifted learners were not routinely attended to by classroom teachers, even those trained in gifted education.

Use of models that explore different types of thinking and problem-solving behavior were not routinely employed in gifted program classrooms. The most prevalent problem-solving behavior observed was brainstorming, many times used in isolation of more fulsome models that examined a broader array of problem-solving behavior. Use of "compare-contrast" activities and evaluation activities were the most prevalent critical thinking approaches employed.

Although metacognition is seen as a strategy central to curriculum reform, it also is frequently promoted as a strategy for the gifted. Little evidence of its use in gifted classrooms was observed. Moreover, little emphasis of out-of-class learning was found in observed teachers of the gifted classrooms as judged by their lack of provision for extended activities. Secondary teachers were more likely to employ such behaviors than elementary teachers.

Conclusion

This study of teacher behaviors across school districts suggests that teaching of the gifted employs fewer higher level strategies than anticipated, given the nature of teacher training emphases at state and national levels in the field. Individualizing for differences within the gifted population, critical thinking, and problem solving were found to be underutilized in most observed classrooms. Core teaching behaviors like lesson planning and clarity in providing directions were more routinely observed. Curriculum reform elements were in evidence unevenly, with greater prevalence of concept teaching than other behaviors.

Implications

There are several implications for professional development practices that emerge from this study. Staff development plans must take into account the evolving skills of teachers such that

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workshops are more tightly focused on needed skills as opposed to desired areas of interests. Gifted programs need to consider the sophistication of using higher level skills effectively and the need for teachers to develop these skills over time through appropriate methods. The tendency to have these teachers inservice others without having mastered the techniques themselves is not a wise deployment of program resources although it constitutes a relatively common practice.

Yet the COS may prove useful in charting overall growth in desirable teacher behaviors by school or district as has been found in other checklists with self monitoring capabilities (Hague and Walker, 1996). Diagnoses of individual teacher skills needed to work effectively with gifted learners can also easily occur through the use of such a tool as the Classroom Observation Scale. Videotape analysis of teaching can employ self-assessment using the instrument as well as using external observers. Working effectively with gifted learners implies greater use of individualization techniques to accommodate vast differences within the population. Thus gifted programs must provide strategies for teachers to apply such techniques routinely in classroom settings.

Teaching is a performance art. Therefore, the test of success is demonstrating mastery of relevant techniques. Use of monitoring approaches including coaching, structured observation, and videotape analysis all increase the chance that teachers will improve in important ways in behaviors that optimize learning for our best students.

This study has pinpointed a need for more extensive staff development work with teachers of the gifted that is planful and ongoing. Future research should be conducted on the relationship between teacher behaviors and the professional development opportunities they are afforded in

schools, especially those that provide systematic follow through to the level of demonstrated impact on student learning (Guskey, 2000).

A study of differential teaching behaviors based on content emphasis would also be interesting and might suggest behavioral adaptations relevant to one domain but not to others. Moreover, a study of teachers trained specifically to work with other special needs populations may also yield important understandings about the relationship of teacher behavior to perceived student characteristics.

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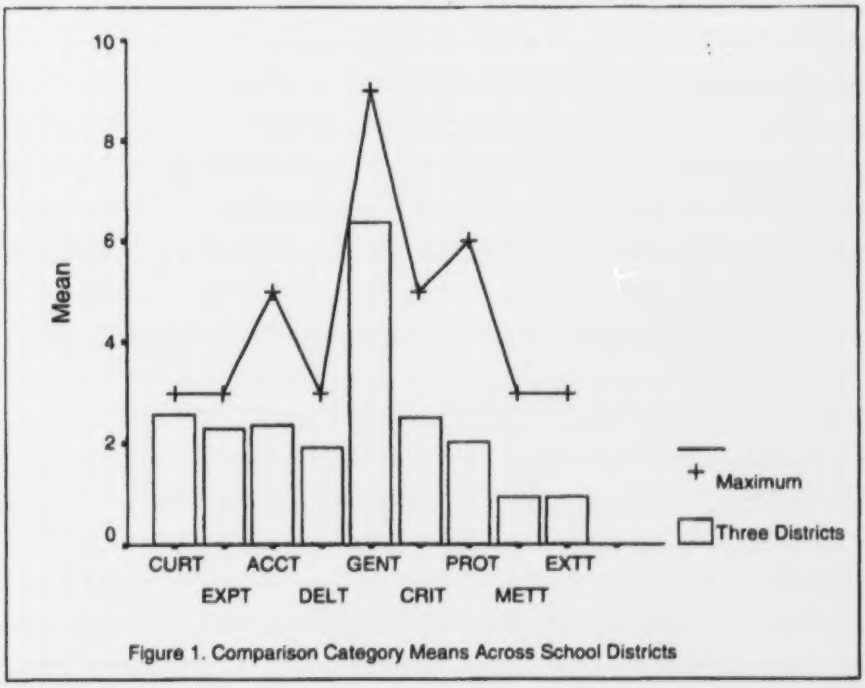

Figure 1. Comparison Category Means Across School Districts

Table 1 Overall Classroom Observation Results (N = 171)

Area	The Teacher ...	Observed	Not Obs.
Curriculum Planning	1. had a written lesson plan linked to course objectives.	158 (92.4%)	13 (7.6%)
	2. communicated the purpose/objectives of the lesson to students.	114 (66.7%)	57 (33.3%)
	3. adhered to the basic framework of the lesson as originally intended.	167 (97.7%)	4 (2.3%)
Expectations for Learners	4. was clear in giving directions, and discussing activities and assignments.	161 (94.2%)	10 (5.8%)
	5. sets high expectations for student performance in the classroom.	113 (66.1%)	58 (33.9%)
	6. provided clear and consistent feedback on student performance.	116 (67.8%)	55 (32.2%)
Accommo-dation to Individual Differences	7. presented content which challenged students.	126 (73.7%)	45 (26.3%)
	8. accommodated individual or subgroup differences through material selection or task assignments.	47 (27.5%)	124 (72.5%)
	9. incorporated multicultural perspectives or knowledge, reflecting at least two cultures.	30 (17.5%)	141 (82.5%)
	10. addressed at least 2 different modes of learning, e.g. visual, auditory, kinesthetic.	165 (96.5%)	6 (3.5%)
	11. allowed students individually or in small groups to move through basic materials more rapidly.	37 (21.6%)	134 (78.4%)
Curriculum Delivery Features	12. emphasized depth in learning.	116 (67.8%)	55 (32.2%)
	13. taught according to key concepts and ideas relevant to content area being addressed.	146 (85.4%)	25 (14.6%)
	14. encouraged or indicated interdisciplinary connections.	63 (36.8%)	108 (63.2%)
General Teaching Strategies	15. used flexible patterns of grouping to deliver the lesson.	107 (62.6%)	64 (37.4%)
	16. used more than one instructional strategy to deliver the lesson.	149 (87.1%)	22 (12.9%)
	17. provided activities in which students applied new learning.	144 (84.2%)	27 (15.8%)
	18. provided the opportunity for the students to use technology.	54 (31.6%)	117 (68.4%)
	19. kept all or most of the students on task.	168 (98.2%)	3 (1.8%)
	20. used hands-on approaches including such things as journaling, manipulatives, experiments, etc.	140 (81.9%)	31 (18.1%)

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Table 1 Overall Classroom Observation Results (N = 171) (Cont'd)

Area	The Teacher ...	Observed	Not Obs.
General Teaching Strategies (Cont'd)	21. used cooperative or collaborative learning strategies.	107 (62.6%)	64 (37.4%)
	22. allowed students to discover central ideas on their own through structured activities and/or questions.	108 (63.2%)	63 (36.8%)
	23. emphasized higher level thinking strategies/skills.	112 (65.5%)	59 (34.5%)
Critical Thinking Strategies	Used activities or questions which enabled students: 24. to make judgments or evaluate situations, problems, or issues.	128 (74.9%)	43 (25.1%)
	25. to compare and contrast.	106 (62.0%)	65 (38.0%)
	26. to generalize from specific data to the abstract.	86 (50.3%)	85 (49.7%)
	27. to synthesize or summarize information within or across the disciplines.	67 (39.2%)	104 (60.8%)
	28. to debate points of view or develop arguments to support ideas.	41 (24%)	130 (76%)
Problem-solving Strategies	Used activities or questions which encouraged students: 29. to brainstorm ideas or alternatives.	92 (53.8%)	79 (46.2%)
	30. to define problems (to go from a "mess" to a well-defined problem statement).	39 (22.8%)	132 (77.2%)
	31. to select and implement solutions to problems.	56 (32.7%)	115 (67.3%)
	32. to explore multiple interpretations.	69 (40.4%)	102 (59.6%)
	33. allowed students to use alternative rather than single modes of expression for class/homework activities/ products (e.g. charts, graphics, videos, journals, etc.)	53 (31%)	118 (69%)
	34. allowed students to self-select topics for further investigation.	36 (21.1%)	135 (78.9%)
Meta-cognition	35. modeled metacognitive strategies such as planning, monitoring, self-reflection or self-appraisal.	55 (32.2%)	116 (67.8%)
	36. provided opportunities for students to think about their own thinking.	60 (35.1%)	111 (64.9%)
	37. had students reflect on their own performance.	46 (26.9%)	125 (73.1%)
Classroom Extensions	38. reinforced or expanded the lesson by assigning homework.	102 (59.6%)	69 (40.4%)
	39. provided follow-up ideas of special projects for students to pursue.	28 (16.4%)	143 (83.6%)
	40. identified people or materials which could be used to supplement student learning.	32 (18.7%)	139 (81.3%)

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Table II Teacher Behaviors Used Most Often

Behaviors observed in over 50% of classrooms	Behaviors observed in over 75% of classrooms
Communicated purpose of lesson	Linked lesson plan to course objectives
Set high expectations	Adhered to framework of lesson
Provided feedback to students on performance	Used clarity in giving directions, etc.
Presented challenging content	Used a variety of models of learning (i.e., visual, auditory)
Emphasized depth in learning	Taught to concepts
Used flexible grouping	Used more than one delivery strategy
Used evaluation strategies	Used application activities
Used brainstorming	Used hands-on approaches
Assigned homework	Students on task
Used collaborative learning	
Used constructive teaching	
Used selected higher order thinking skills (i.e., compare and contrast, generalization)	

Table III Teacher Behaviors Used Least Often

Behaviors not observed in over 50% of the classrooms	Behaviors not observed in over 75% of the classrooms
Differentiation for individuals and subgroups by materials or task	Use of multicultural perspectives
Interdisciplinary connections	Acceleration of learning tasks
Use of technology	Use of debate on multiple perspectives or argument development
Use of synthesis skills	Modeled metacognition strategies
Problem-solving strategies (ie., brainstorming, problem definition, multiple solution finding)	Had students reflect on learning and performance
Use of alternative models for product development	Provided ideas for special projects
	Identified supplemental materials for people to deepen learning
	Student choice in study topics

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